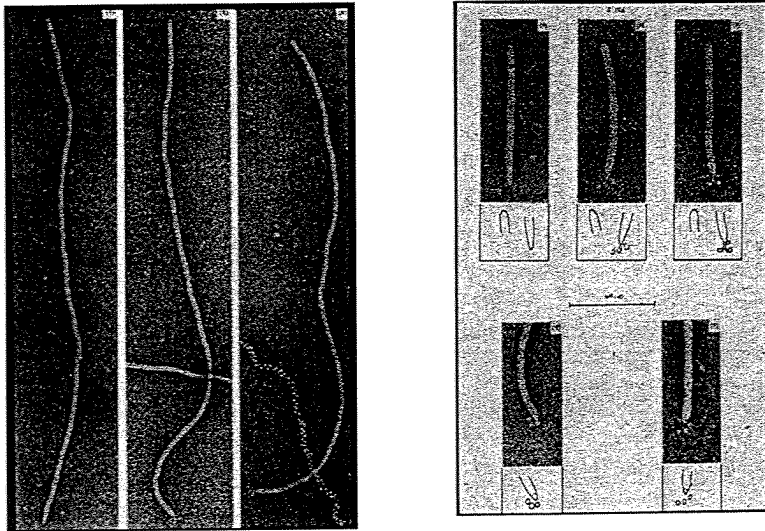


Exhibit D

Fd is a virus that infects certain strains of Escherichia Coli bacteria. It is not dangerous to people. The virus is about 880 nm in length and 6.6 nm in diameter. The protein shell has a hollow core in the center into which the DNA is stuffed. The virus is semiflexible, the persistence length is 2.2 microns. There are specialized proteins at the ends of the virus used for infection.

Molecular structure of fd virus



from: Model, P. and Russel, M. Filamentous Bacteriophage. In: *The Bacteriophages*, edited by Calender, R. New York: Plenum, 1988, p. 375-456.



EM with contrast provided by oblique